

MODLER For Windows

Statistical Information and Modeling System

# **MODLER User Guide - 2005**

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# AN OVERVIEW

The software described in this User Guide is the result of over 35 years of development and worldwide use. Consequently MODLER is one of the most comprehensive and capable econometric software packages available today. Its characteristics reflect the demands that have been placed upon it by the thousands of people who have used it during these years as a general analysis tool, as well as to create more than 2000 documented, generally large-scale models. In a very real sense, MODLER is the creation of its users who continue to make the comments and suggestions that progressively are incorporated into its successive versions.

The package supports the construction, maintenance, and use of econometric models that can range in size from a few equations to 1000 or more, depending upon the specific MODLER version. These models can be dynamic or static, recursive or simultaneous, and linear or non-linear. Virtually any type of econometric model can be solved by MODLER, including those whose behaviour is defined by complex objective functions and multi-sector models that incorporate Input-Output structures and other unusual features.

## Some Basic Concepts

But rather than to begin by considering individual characteristics and capabilities, initially it might be useful to adopt a wide perspective. One way to characterize MODLER generally is as a resource manager. It can be used to create and maintain a variety of resources that include time series data banks, econometric models, plots and other graphics displays, tabular reports, and various other such objects. A data bank, in this context, is a collection of data that are conceptually related in some way, and are organized into observations over time on economic and other societal variables. Associated with each MODLER data bank is a data dictionary, or *index*; that is, a list of the time series variables it contains. This list can be displayed in several forms that range from a simple display of just the names of the variables to that list of names together with a fairly complete description of their characteristics, the latter in its most complete form being called a “fully

documented” (or FullDoc) index. Such displayed listings can consist of all the series in a bank, or a subset.

A central MODLER design concept is that it is natural to work with data collections the elements of which have an obvious mutual relationship; for instance, the National Income and Product Accounts or Flow of Funds data for some particular economy, or value added or employment data for some industry or collection of industries. These are inherently logical as data collections, both in terms of the way in which the data they contain are made publicly available by government agencies and others, and the way in which they tend to be used.

However, these collections are also conceptually fuzzy sets, and sometimes need to be combined and disassembled and reorganized and reassembled. Reflecting this need, each data bank managed by MODLER can contain as many as 10,000 time series, and the program can open for access up to 15 banks at a time, which of course means that, in principle, operations can be performed that could involve simultaneous selection from as many as 150,000 series. Within this context, new data banks, even large banks, can be created easily and data series copied to form a new collection for some particular purpose, with each series’ documentation simultaneously transferred in the process.

Seldom, if ever, has anyone used the program at anywhere near this scale of operation, but the point is that MODLER offers an unconstrained environment that is designed to allow you to access, manage, and maintain large data sets, if you wish. And it therefore incorporates various facilities that are designed to make this a feasible undertaking, whatever your scale of operation. Thus in addition to allowing you to manage data banks that can be organized into conceptually convenient collections of time series, the program also allows you to define other types of “objects” that you may want to work with: tables that contain particular variables, that you can organize and classify, or plots of variables over time that also can be named, classified, and displayed repeatedly on a weekly, monthly, or annual basis, as new observations become available, or models that refer to particular economies or regions or industries. Note that, conceptually, all these objects form collections of economic variables that are operated on and manipulated in specific ways.

MODLER also incorporates automatic data management facilities. For instance, whenever transformations or other such data operations are performed that generate new variables, in the absence of instructions to the

contrary, the program will automatically create a temporary workspace, known as a *Memory File*. The Memory File operates as a temporary, working data bank and is automatically accessed subsequently. The contents of this workspace can be saved from session to session at your option, and once created MODLER will remind you to save it, if you wish, before closing out that session.

MODLER performs these operations in a world in which the data are published and distributed in a variety of formats. Your work, in turn, will involve the creation of documents, presentations, tables, graphs, and other displays, many of which will inevitably involve the use of other software packages; no single program can do everything and, in any case, you bring to the task your past experience of particular packages. And today, the way in which you both acquire your raw materials and present your work can include both hard copy and machine readable forms, including the Internet, as well as diskettes (less and less), CDRoms, flash drives, and other forms. MODLER is therefore designed to import data in a variety of formats, export results conveniently, and interact with a variety of other software packages along the way, including word processors, spreadsheet packages, presentation managers, and Internet browsers.

The particular software described in this user guide, MODLER for Windows, is designed to be used on microcomputers that have as their operating system Windows 9.x, Windows NT, Windows 2000 or Windows XP, among others. In order to operate properly, MODLER requires at least 2 megabytes of RAM and 3 or more megabytes of hard disk space. Because of this parsimonious use of computer resources, particularly if you have a modern machine with a large hard disk, you will be hard put to measure whatever imposition it makes, particularly in comparison with resource intensive packages such as Microsoft Office.

MODLER operates in the context of the Windows operating system in a way that takes active advantage of all the facilities of this environment. For instance, it seamlessly utilizes Windows' file manager and text editor facilities. Otherwise, MODLER is designed to communicate directly with many other microcomputer packages, including spreadsheet, data base maintenance, communications, drawing, graphics, word-processing, and desktop publishing programs. As a case in point, MODLER has the capability to write to and directly read from individual spreadsheet worksheet cells, allowing it to both import data selectively and use spreadsheet packages as sophisticated report generators. More generally, MODLER displays can be captured and forwarded to other programs or the Internet.

However, MODLER is not limited to a particular context. Versions are available for use with midrange computers and mainframes that are fully command-compatible; in fact, prior to 1982, MODLER operated exclusively on mainframe computers. Today, MODLER provides the same computational capabilities on any class of computer, from sub-notebook to mainframe.

MODLER's principal features include:

- A complete environment for maintaining virtually any size data base, analysing and transforming data, and constructing and solving models, large or small
- A Graphical User Interface (GUI) that includes a straightforward macro command language that can be used to support periodic production use
- Complete language and file compatibility with other MODLER family programs
- Intelligent defaults that save you from having to specify details of data organisation and presentation
- Continuous recording of results so that you can stop the program after any command and restart later with virtually no loss of information
- The ability to run a wide variety of other programs from within MODLER, including word processing, communications, and spreadsheet programs, as well as to link to the Internet using the browser you designate
- Complete freedom to switch between different commands, operations, and data files allowing you to go back and revise prior steps or interrupt work on one project in order to examine results from another

Instant on-screen tables and graphics with options for storing results on disk and for making immediate hard copies using windows compatible local or network printers, plotters, and other such devices

MODLER provides extensive facilities for data analysis and display:

- Search and retrieval of series from Data Banks
- Temporary storage of user entered or generated series in a workspace 'Memory File'
- Derivation of series by analytic formula
- Ability to route hard copy output to Windows-compatible local or network printers and other peripheral devices
- The capability to design and manage annotated tabular reports
- Ability to produce plots, bar charts, scatters, and other diagrams on screen and windows-compatible peripheral devices
- Ability to create and maintain your own, fully-documented Data Banks

Depending upon the version you have, MODLER also gives you all the facilities necessary for building models comprising anything from 1 to 1000 or more equations for use in forecasting or simulation. All versions provide:

- A variety of regression techniques to estimate and test relationships between variables
- Selective entry of imposed and estimated equations into models, the latter in autocoded form
- Automatic documentation of models with estimation statistics
- The editing and management of model equations as grouped objects

Collation of data for model variables through automatic Data Bank search

- Ability to establish and manage alternative sets of assumed values for exogenous variables and add factors
- Optional alignment of a model to a given 'base' forecast
  
- Definition of variant forecasts by progressive modification of assumptions
  
- Standard tables and plots of results including comparisons between alternative forecasts
  
- Ability to copy forecast results as defined data sets

